

16. NOTES ON CROCODILIAN LOCOMOTION

(With a photograph)

1. Gharial (*Gavialis gangeticus*)

While the gharial is one of the most thoroughly aquatic crocodiles, it is capable of considerable overland movement. At the Madras Crocodile Bank, a sub-adult male of 2.3 metres length did a belly slide of 650 metres one night after climbing its 120 cm pen wall. While the belly slide is the only terrestrial gait gharial over 2 metres seem capable of, smaller specimens are able to support themselves and walk in spite of their somewhat feeble front legs, though they usually do not, and employ the raised posture primarily as a threat display.

In Corbett National Park and at Madras Crocodile Bank, submerged gharial were frequently observed to propel themselves quickly along through shallow water by pushing their feet along the bottom with a gait reminiscent of the varanid gait (the body swings, while the head remains relatively stationary as it moves forward).

When crocodilians thus move along muddy bottoms, their progress is often visible by trails of bubbles. Pond gas is released as their feet touch the bottom, and we have, several times, detected the presence of crocodiles in ponds and streams in the wild by this observation.

2. Galloping in the Mugger Crocodile
(*Crocodylus palustris*)

In their paper on galloping in *Crocodylus johnstoni*, Webb and Gans (1982) describe the bounding gait termed galloping that is frequently used by this rather diminutive Australian crocodile to escape capture or when released. They conclude that it is a useful gait to increase escape velocity and to

negotiate rocks and logs in the way, especially for crocodiles which spend considerable time travelling or hunting on land.

While working on the United Nations crocodile project in Papua New Guinea, the first author observed galloping by the New Guinea crocodile on numerous occasions (though never *Crocodylus porosus* as reported and filmed by Zug 1974). While this gait was more commonly used by younger animals and then always to escape (as Webb and Gans also report), a captive adult female of c. 1.65 m (TL) at Moitaka Farm used to rush to defend her nest by galloping up a fairly steep slope. (See Photo. 1, taken in the wild in Papua New Guinea). Bustard and Singh (1977) report galloping in young *Gavialis*, and in 1981 the first author saw young *Osteolaemus tetraspis* gallop at Zoo Negara in Malaysia (Whitaker 1981).

We have observed juvenile *Crocodylus palustris* galloping on a number of occasions.

The mugger is one of the species of crocodiles that is regularly reported to hunt on land and routinely makes long seasonal forays between bodies of water. Though mugger which we have encountered far from water in the wild made no attempt to escape, much less gallop, there are obviously circumstances (such as a refuge in water nearby) when this spectacular gait would be employed.

The reader is referred to the paper by Webb and Gans for a statistical analysis of galloping and a discussion of the other crocodilian gaits.

ACKNOWLEDGEMENT

We wish to thank Romaine Andrews for typing the manuscript.

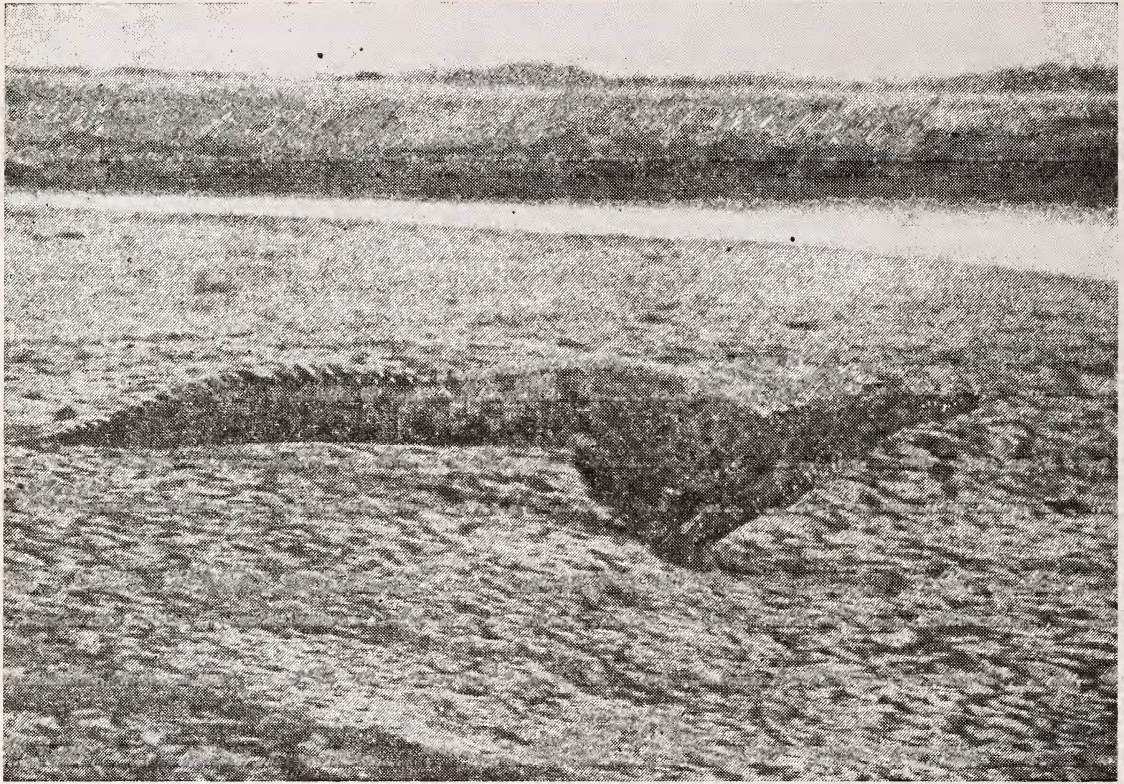


Photo. 1. Sub-adult New Guinea Crocodile galloping. (Photo: Bob Hawkins).

MADRAS CROCODILE BANK,
VADANEMMELI VILLAGE, PERUR POST,
MAHABALIPURAM ROAD,
MADRAS - 603 104,
April 20, 1988.

ROMULUS WHITAKER
HARRY ANDREWS

REFERENCES

BUSTARD, H. R. & SINGH, L.A.K. (1977): Studies on the Indian Gharial: change in terrestrial locomotory pattern with age. *J. Bombay nat. Hist. Soc.* 74:

WEBB, G. J. W. & GANS, CARL (1982): Galloping in *Crocodylus johnstoni* — A reflection of terrestrial activity. *Rec. Austral. Mus.* 43 No. 14: 607-618.

WHITAKER, R. (1981): Breeding the African Dwarf Crocodile (*Osteolaemus tetraspis*) at Zoo Negara, Kuala Lumpur, with an observation on galloping. *Hamadryad* 6(2).

ZUG, G. R. (1974): Crocodylian galloping — a unique gait for reptiles *Copeia* (2).